Limbal Stem Cell Deficiency After Glaucoma Surgery.

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Public Summary:
The purpose of this study is to characterize the clinical presentation of limbal stem cell deficiency (LSCD) associated with glaucoma surgeries, a condition characterized by the damage of the optic nerve. LSCD in patients affected by glaucoma uniquely featured sectoral replacement of corneal epithelium by conjunctival epithelium suggesting that LSCD associated with glaucoma surgery has clinical features distinct from LSCD resulting from other etiologies.

Scientific Abstract:
PURPOSE: To characterize the clinical presentation of limbal stem cell deficiency (LSCD) associated with glaucoma surgeries. METHODS: This is a retrospective cross-sectional study of patients with LSCD and glaucoma who presented to the Stein Eye Institute at the University of California, Los Angeles, between 2009 and 2018. Patients who underwent trabeculectomy and/or aqueous shunt surgery were included. The severity of LSCD was staged using global consensus guidelines and a clinical scoring system, and basal epithelial cell density was measured by in vivo confocal microscopy. Anatomic locations of glaucoma and non-glaucoma surgeries, locations of LSCD, and severity of LSCD were compared. RESULTS: Fifty-one eyes of 41 patients with LSCD associated with glaucoma surgery were included in this study. LSCD in these patients uniquely featured sectoral replacement of corneal epithelium by conjunctival epithelium, without corneal neovascularization or pannus. The sites of glaucoma surgery strongly correlated with the locations of LSCD ($P = 0.002$). There was a trend toward increased severity of LSCD in eyes with 2 or more glaucoma surgeries as compared to eyes with 1 glaucoma surgery, although the difference did not reach statistical significance ($P = 0.3$). Use of topical glaucoma medications correlated with LSCD severity, while the impact of antimetabolites did not reach statistical significance. The location of glaucoma drainage surgery is correlated with the location of LSCD. CONCLUSIONS: LSCD associated with glaucoma surgery has clinical features distinct from LSCD resulting from other etiologies. Further study is required to delineate the full impact of glaucoma surgery on limbal stem cell function and survival.